

405 KAR 30:010. Definitions.

RELATES TO: KRS 350.600

STATUTORY AUTHORITY: KRS 151.125, 224.033, 350.028, 350.050, 350.600

NECESSITY, FUNCTION, AND CONFORMITY: KRS 350.600 requires the Environmental and Public Protection Cabinet to develop administrative regulations for oil shale operations to minimize and prevent their adverse effects on the citizens and the environment of the Commonwealth. This administrative regulation provides for the defining of certain essential terms used in 405 KAR Chapter 30.

Section 1. Definitions. Unless otherwise specifically defined or otherwise clearly indicated by their context, terms in 405 KAR Chapter 30 shall have the meanings given in this administrative regulation.

(1) "Acid drainage" means water with a pH of less than six (6.0) and in which total acidity exceeds total alkalinity, discharged from active, inactive or abandoned oil shale mines, waste disposal areas, and reclamation operations or from other affected areas.

(2) "Acid-forming materials" means earth materials that have a pH of less than four and five-tenths (4.5) or that contain sulfide minerals or other materials which, if exposed to air, water, weathering, or microbiological processes, form acids that may create acid drainage.

(3) "Adjacent area" means land located outside the affected area or permit area, depending on the context in which "adjacent area" is used, where air, surface or groundwater, fish and wildlife, vegetation soils, or other resources protected by KRS Chapter 350 may be adversely impacted by an oil shale operation.

(4) "Affected area" means any land or water upon which surface oil shale operations are conducted or located, and the land or water which is located above or within underground mine workings.

(5) "Agricultural use" means the use of any tract of land for the production of animal or vegetable life. The uses include, but are not limited to, the pasturing, grazing, and watering of livestock, and the cropping, cultivation, and harvesting of plants.

(6) "Applicant" means any person seeking a permit from the cabinet to conduct oil shale operations pursuant to KRS Chapter 350 and all applicable administrative regulations.

(7) "Application" means the documents and other information filed with the cabinet for a permit.

(8) "Aquifer" means a zone, stratum, or group of strata that can store and transmit water in sufficient quantities for a specific use.

(9) "Atmospheric water" means water that has traveled back to the atmosphere through evaporation from surfaces and transpiration through the porous outer barriers of plants and animals.

(10) "Barrel" means the unit of liquid volume for the petroleum and related products equal to forty-two (42) gallons (158.9 liters).

(11) "Best technology currently available" means equipment, devices, systems, methods, or techniques which will prevent, to the extent possible, additional contributions of suspended solids to stream flow or run off outside the permit area, but in no event will result in contributions of suspended solids in excess of requirements set by applicable Kentucky or federal laws; and minimize, to the extent possible, disturbances and adverse impact on fish, wildlife, and related environmental values, and achieve enhancement of those resources where practicable. The term includes equipment, devices, systems, methods, or techniques which are currently available anywhere as determined by the cabinet, even if they are not in routine use. The term includes, but is not limited to, construction practices, siting requirements, vegetative selection and planting requirements, animal stocking requirements, scheduling of activities and design of sedimentation ponds in accordance with applicable laws and administrative regulations. The cabinet shall have the discretion to determine the best

technology currently available on a case-by-case basis, as authorized by KRS Chapters 350 and 224 and administrative regulations promulgated pursuant thereto.

(12) "Borehole" means a narrow, cylindrical hole drilled into the ground, usually for the purpose of geological or hydrological investigation and for placement of charges for blasting operations.

(13) "Cabinet" means the Environmental and Public Protection Cabinet.

(14) "Casing" means a metal or plastic pipe or tube used as lining for water, oil or gas wells.

(15) "Combustible material" means material that is capable of burning, either by fire or through oxidation, accompanied by the evolution of heat and a significant temperature rise.

(16) "Compaction" means increasing the density of a material by reducing the voids between the particles by mechanical effort.

(17) "Complete application" means an application for a permit, which contains all information required under 405 KAR Chapter 30.

(18) "Corehole" means a cylindrical sample of rock or other strata obtained through the use of a hollow drill bit which cuts and retains a section of rock or other strata penetrated.

(19) "Critical areas" means areas which are considered irreplaceable resources and include national parks, state parks, national forests, Kentucky fish and wildlife management areas, state forests, university owned scientific and educational areas, important species habitat, karst areas, wetlands, natural preserves, unique geological features, Kentucky Wild Rivers, natural national landmarks, ecological areas, and private conservation areas.

(20) "Cropland" means land used for the production of adapted crops for harvest, alone or in a rotation with grasses and legumes, and includes row crops, small grain crops, hay crops, nursery crops, orchard crops, and other similar specialty crops. Land used for facilities in support of cropland farming operations which is adjacent to or an integral part of these operations is also included for purposes of land use categories.

(21) "Deposit" means a consolidated or unconsolidated material that has accumulated by a natural process or agent.

(22) "Developed water resources land" means land used for storing water for beneficial uses such as stock ponds, irrigation, fire protection, flood control, recreation, and water supply.

(23) "Disturbed area" means an area where vegetation, topsoil, or overburden is removed or upon which topsoil, spent shale, and mining or processing waste is placed during oil shale operations. Those areas are classified as "disturbed" until reclamation is complete and the performance bond or other assurance of performance required by 405 KAR Chapter 30 is released.

(24) "Diversion" means a channel, embankment, or other manmade structure constructed to divert water from one (1) area to another.

(25) "Downslope" means the land surface below the projected outcrop of the lowest bench elevation from which oil shale is being mined.

(26) "Ecological areas" are areas which have been identified to be significant reservoirs of Kentucky's natural heritage including areas containing rare plant and animal species, old growth or undisturbed forests, and intact wetlands.

(27) "Effluent limitations" means any restrictions or prohibitions established under state law which include, but are not limited to, effluent limitations, standards of performance for new sources, and toxic effluent standards on quantities, rates and concentrations of chemical, physical, biological and other constituents which are discharged into the waters.

(28) "Embankment" means an artificial deposit of material that is raised above the natural surface of the land and used to contain, divert, or store water, support roads or railways, or for other similar purposes.

(29) "Ephemeral stream" means a stream which flows only in direct response to precipitation in the immediate watershed or in response to the melting of a cover of snow or ice and which has a

channel that is always above the local water table.

(30) "Fish and wildlife habitat" means land dedicated wholly or partially to the production, protection or management of species of fish or wildlife.

(31) "Flood plain" means the area in a watershed that is subject to inundation by a particular size precipitation event.

(32) "Forest land" means land used or managed for the long-term production of wood, wood fiber, or wood derived products. Land used for facilities in support of forest harvest and management operations which is adjacent to or an integral part of these operations is also included.

(33) "Fragile lands" means geographic areas containing significant natural, ecologic, scientific or aesthetic resources that could be damaged or destroyed by oil shale operations. These lands may include, but are not limited to, uncommon geologic features, national natural landmark sites, valuable habitats for fish and wildlife, critical habitats for endangered or threatened species of animals and plants, wetlands, environmental corridors containing concentrations of ecologic and aesthetic features, state-designated nature preserves and wild rivers, areas of recreational value due to high environmental quality, buffer zones around areas where oil shale operations are prohibited, and important, unique or highly productive soils or mineral resources.

(34) "Fragipan" is a loamy, brittle, subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

(35) "Fugitive dust" means that particulate matter which becomes airborne due to wind erosion or mechanical operations.

(36) "Government-financed construction" means construction funded fifty (50) percent or more by funds appropriated from a government financing agency's budget or obtained from general revenue bonds, but shall not mean government financing agency guarantees, insurance, loans, funds equivalent, or in-kind payments.

(37) "Grazing land" means grassland and forest lands where the indigenous vegetation is actively managed for grazing, browsing, or occasional hay production. Land used for facilities in support of grazing operations which are adjacent to or an integral part of these operations is also included.

(38) "Groundwater" means subsurface water that fills available openings in rock or soil materials to the extent that they are considered water saturated.

(39) "Head-of-hollow fill" means a fill structure consisting of any material, other than organic material, placed in the uppermost reaches of a hollow near the approximate elevation of the ridgeline, where there is no significant natural drainage area above the fill, and where the side slopes of the existing hollow measured at the steepest point are greater than twenty (20) degrees or the average slope of the profile of the hollow from the toe of the fill to the top of the fill is greater than ten (10) degrees.

(40) "Highwall" means the face of exposed overburden and/or oil shale in an open cut of a surface oil shale mining operation.

(41) "Historic lands" means historic or cultural districts, places, structures or objects, including but not limited to sites listed on a state or national register of historic places, national historic landmarks, archaeological and paleontological sites, cultural or religious districts, places, or objects.

(42) "Hydrologic balance" means the relationship between the quality and quantity of water inflow to, water outflow from, and water storage in a hydrologic unit such as a drainage basin, aquifer, soil zone, lake, or reservoir. It encompasses the dynamic relationship between precipitation, run-off, evaporation, and changes in ground and surface water storage.

(43) "Imminent danger to the health and safety of the public" means the existence of any condition or practice, or any violation of a permit or other requirements of KRS Chapter 350 and applicable administrative regulations in an oil shale operation, which could reasonably be expected to

cause substantial physical harm to persons outside the permit area before the condition, practice, or violation can be abated. A reasonable expectation of death or serious injury before abatement exists if a rational person, subjected to the same condition or practice giving rise to the peril, would avoid exposure to the danger during the time necessary for abatement.

(44) "Impermeable" means materials which exhibit a coefficient of permeability (K) value less than 10-6 cm/sec.

(45) "Impoundment" means a closed basin, naturally formed or artificially built, which is dammed or excavated for the retention of water, sediment, or waste.

(46) "Industrial/commercial lands" means lands used for:

(a) Extraction or transformation of materials for fabrication of products, wholesaling of products or for long-term storage of products; and heavy and light manufacturing facilities such as lumber and wood processing, chemical manufacturing, petroleum refining, and fabricated metal products manufacture. Land used for facilities in support of these operations which is adjacent to or an integral part of that operation is also included. Support facilities include, but are not limited to railroads, roads, and other transportation facilities.

(b) Retail or trade of goods or services, including hotels, motels, stores, restaurants, and other commercial establishments. Land used for facilities in support of commercial operations which is adjacent to or an integral part of these operations is also included. Support facilities include, but are not limited to, parking, storage or shipping facilities.

(47) "In situ processes" means activities conducted on the surface or underground in connection with in-place distillation, retorting, leaching, or other chemical or physical processing of oil shale. The term includes, but is not limited to, in situ gasification, in situ leaching, solution mining, borehole mining, and fluid recovery mining.

(48) "Intermittent stream" means:

(a) A stream or reach of stream that drains a watershed of one (1) square mile or more but does not flow continuously during the calendar year, or;

(b) A stream or reach of a stream that is below the local water table for at least some part of the year, and obtains its flow from both surface run-off and groundwater discharge.

(49) "Land use" means specific uses or management-related activities rather than the vegetation or cover of the land, and may be identified in combination when joint or seasonal uses occur.

(50) "Leaching" means the removal of soluble constituents from a solid substance by the action of a percolating liquid.

(51) "Leachate" means the liquid that has passed through or emerged from any solid and contains soluble, suspended or miscible materials removed from such solids.

(52) "Logging" means the measurement of physical properties of the strata penetrated by a borehole; accomplished by lowering instruments down the hole and recording measurements at the surface.

(53) "Monitoring" means the collection of environmental, scientific, or engineering data by either continuous or periodic sampling methods.

(54) "Mulch" means vegetation residues or other suitable materials that aid in soil stabilization and soil moisture conservation, thus providing microclimatic conditions suitable for germination and growth.

(55) "Natural hazard lands" means geographic areas in which natural conditions exist that pose or, as a result of oil shale operations, may pose a threat to the health, safety, or welfare of people, property or the environment, including but not limited to, areas subject to landslides, cave-ins, subsidence, substantial erosion, unstable geology, or frequent flooding.

(56) "Noxious plants" means species classified under KRS 250.010 as noxious plants.

(57) "Occupied dwelling" means any building that is being used on a regular or temporary basis for human habitation at the time of application for permit.

(58) "Oil shale" is a laminated, sedimentary rock which contains refractory, insoluble organic material (kerogen) that can be treated by pyrolysis to yield liquid fuels.

(59) "Oil shale exploration" means the field gathering of surface or subsurface geologic, physical, or chemical data by mapping, trenching, drilling, geophysical, or other techniques necessary to determine the quality, quantity, and composition of overburden and oil shale of an area.

(60) "Operations" means oil shale extraction experimentation, exploration, processing, waste disposal and reclamation activities, all of the premises, facilities, roads and equipment used in the mining and processing of oil shale from a designated area, or removing overburden for the purpose of determining the location, quality or quantity of a natural oil shale deposit or the activity to facilitate or accomplish the extraction or removal of oil shale.

(61) "Operator" means any person, partnership, or corporation engaged in oil shale extraction, exploration, processing, waste disposal, reclamation or related operations which includes but is not limited to those who remove or intend to remove oil shale or shale oil from the earth, or who remove overburden for the purpose of determining the location, quality or quantity of a natural oil shale deposit, or those who engage in oil shale processing. Government-financed construction activities in which oil shale is incidentally extracted are excluded from this definition.

(62) "Outslope" means the face of the spoil, waste, or embankment sloping downward from the highest elevation to the toe.

(63) "Overburden" means material of any nature, consolidated or unconsolidated, that overlies an oil shale deposit, excluding topsoil and vegetation.

(64) "Pastureland/hayland" means land used primarily for the long-term production of adapted, domesticated forage plants to be grazed by livestock or occasionally cut and cured for livestock feed. Land used for facilities in support of pastureland or land occasionally cut for hay which is adjacent to or an integral part of these operations is also included.

(65) "Perennial stream" means a stream or that part of a stream that flows continuously during all of the calendar year as a result of groundwater discharge or surface run-off. The term does not include intermittent stream or ephemeral stream.

(66) "Permanent diversion" means a diversion remaining after oil shale mining, processing, waste disposal, reclamation or related operations are completed which has been approved for retention by the cabinet and other appropriate Kentucky and federal agencies.

(67) "Permit" means written approval issued by the cabinet to conduct oil shale operations.

(68) "Permit area" means the area of land and water within boundaries designated in the approved permit application, which shall include, at a minimum, all areas which are or will be affected by any oil shale operations under a particular permit.

(69) "Permittee" means any person, partnership, or corporation engaged in oil shale extraction, exploration, processing, waste disposal, reclamation or related operations which includes, but is not limited to, those who remove or intend to remove oil shale or shale oil from the earth, or who remove overburden for the purpose of determining the location, quality or quantity of a natural oil shale deposit or those who engage in oil shale processing. In all cases a permittee shall be considered an operator.

(70) "Person" means an individual, partnership, association, society, joint venture, joint stock company, firm, company, government agency, utility, corporation, or other business organization.

(71) "pH" means the negative logarithm (base 10) of the hydrogen ion concentration of a solution and is a measure of the acidity or alkalinity of a solution.

(72) "Precipitation event" means a quantity of water resulting from drizzle, rain, snow, sleet, or hail in a specified period of time.

(73) "Processing" means the crushing, preparation, distillation, refining, upgrading, retorting, or any other operation used in the extraction of shale oil or other products from oil shale.

(74) "Property to be mined" means both the surface and mineral estates on and underneath lands

which are within the permit area.

(75) "Public office" means a facility under the direction and control of a governmental entity which is open to public access on a regular basis during reasonable business hours.

(76) "Public park" means an area dedicated or designated by any federal, state, or local agency for public recreational use, despite whether such use is limited to certain times or days. It includes any land leased, reserved or held open to the public because of that use.

(77) "Public road" means any publicly owned thoroughfare for the passage of vehicles.

(78) "Recharge capacity" means the ability of the soils and underlying materials to allow precipitation and run-off to infiltrate and reach the zone of saturation.

(79) "Reclamation" means the reconditioning and restoration of areas affected by any oil shale operation as required by KRS Chapter 350, Chapter 224 and all administrative regulations promulgated pursuant thereto under a plan approved by the cabinet.

(80) "Recreation land" means land used for public or private leisure-time use, including developed recreation facilities such as parks, camps, and amusement areas, as well as areas for less intensive uses such as hiking, canoeing, hunting, and other undeveloped recreational uses.

(81) "Recurrence interval" means the interval of time in which an event is expected to occur once, on the average.

(82) "Reference area" means a land unit maintained under appropriate management for the purpose of measuring vegetation ground cover, productivity and plant species diversity that are produced naturally or by crop production methods approved by the cabinet. Reference areas must be representative of geology, soil, slope, and vegetation in the permit area.

(83) "Renewable resource lands" means aquifers and areas for the recharge of aquifers and other underground waters, areas for agricultural or silvicultural production of food and fiber, and grazing lands.

(84) "Residential land" means tracts used for single and multiple-family housing, mobile home parks, and other residential lodgings. Also included is land used for support facilities which is adjacent to or an integral part of these operations such as vehicle parking, open space, and other facilities which directly relate to the residential use of the land.

(85) "Safety factor" means the ratio of the available shear strength to the developed shear stress, or the ratio of the sum of the resisting forces to the sum of the loading or driving forces, as determined by accepted engineering practices.

(86) "Sedimentation pond" means a primary sediment control area designed, constructed and maintained in accordance with 405 KAR 30:330 and including but not limited to a barrier, dam, excavation or diversion which slows down water run-off to allow suspended solids to settle out. A sedimentation pond shall not include secondary sedimentation control structures, such as straw dikes, riprap, check dams, mulches, dugouts and other measures that reduce run-off volume or trap sediment to the extent that such secondary sedimentation structures drain to a sedimentation pond.

(87) "Shale fines" means those shale particles which have been produced through handling, crushing, transporting, and other associated processes.

(88) "Shale oil" is a volatile and condensable crude-oil-like material produced upon pyrolysis or oil shale or kerogen from oil shale.

(89) "Significant, imminent environmental harm" is an adverse impact on land, air, or water resources which include, but are not limited to, plant and animal life as further defined in this subsection.

(a) An environmental harm is imminent, if a condition, practice, or violation exists which:

1. Is causing such harm; or

2. May reasonably be expected to cause such harm at any time before the end of the reasonable abatement time that would be set by the cabinet's authorized agents pursuant to the provisions of KRS Chapter 350.

(b) An environmental harm is significant if that harm is appreciable and not immediately reparable.

(90) "Slurry" means a suspension of pulverized solid in a liquid.

(91) "Slope" means average inclination of a surface, measured from the horizontal, generally expressed as the ratio of a unit of vertical distance to a given number of units of horizontal distance (e.g. 1v:5h). It may also be expressed as a percent or in degrees.

(92) "Soil horizons" means contrasting layers of soil parallel or nearly parallel to the land surface. Soil horizons are differentiated on the basis of field characteristics and laboratory data. The three (3) major soil horizons are:

(a) "A horizon." The uppermost soil layer, often called the surface soil. It is the part of the soil in which organic matter is most abundant, and leaching of soluble or suspended particles is typically the greatest.

(b) "B horizon." The layer that typically is immediately beneath the A horizon and often called the subsoil. This middle layer commonly contains more clay, iron, or aluminum than the A or C horizons.

(c) "C horizon." The deepest layer of soil profile. It consists of loose material or weathered rock that is relatively unaffected by biologic activity.

(93) "Soil survey" means a field and other investigation resulting in a map showing the geographic distribution of different kinds of soil and an accompanying report that describes, classifies, and interprets such soils for use. Soil surveys must meet the standards of the National Cooperative Soil Survey.

(94) "Spent shale" means the solid waste material after oil shale has been subjected to a process (chemical, mechanical, or thermal) to recover the oil and gas contained in the raw material.

(95) "Spoil" means overburden that has been removed during oil shale operations.

(96) "Stabilize" means to control movement of soil, spoil piles, spent shale, or areas of disturbed earth by modifying the geometry of the mass, or by otherwise modifying physical or chemical properties, such as providing a protective surface coating.

(97) "Surber" is a method of taking quantitative bottom samples of streams. The surber covers one (1) square foot and is designed for use in flowing waters of shallow streams and cannot be used satisfactorily in fast water over eighteen (18) inches in depth or in bottoms where the substrata is composed of large rubble and boulders.

(98) "Surface water" means water, either flowing or standing, on the surface of the earth.

(99) "Suspended solids," expressed as milligrams per liter, means organic or inorganic materials carried or held in the liquid phase in the procedure outlined by the Environmental Protection Agency's administrative regulations for waste water and analyses.

(100) "Temporary diversion" means a diversion of a stream or overland flow which is used during oil shale operations and not approved by the cabinet to remain after reclamation as part of the approved postmining land use.

(101) "Ten (10) year, twenty-four (24) hour frequency event" means the maximum twenty-four (24) hour precipitation event with a probable reoccurrence interval of once in ten (10) years as defined by the National Weather Service and Technical Paper No. 40, "Rainfall Frequency Atlas of the U.S.," May, 1961, and subsequent amendments, or equivalent regional or rainfall probability information developed therefrom.

(102) "Topsoil" means the A horizon soil layer.

(103) "Toxic-forming materials" means earth materials or wastes which, if acted upon by air, water, weathering, or biological processes, are likely to produce chemical or physical conditions in soils or water that are detrimental to biota or uses of water.

(104) "Toxic mine drainage" means water that is discharged from active or abandoned mines or other areas affected by oil shale operations, which contains a substance that through chemical or microbiological action, or physical effects is likely to kill, injure, or impair biota commonly present in

the area that might be exposed to it.

(105) "Undeveloped land" means land that is undeveloped or, if previously developed, land that has been allowed to return naturally to an undeveloped state or has been allowed to return to forest through natural succession.

(106) "Valley fill" means a fill structure consisting of any material that is placed in a valley where side slopes of the existing valley measured at the steepest point are greater than twenty (20) degrees or the average slope of the profile of the valley from the toe of the fill to the top of the fill is greater than ten (10) degrees.

(107) "Waste" means:

(a) "Mining waste" means those wastes which are generated during and incident to the mining and extraction of oil shale and related overburden from the earth. Such wastes shall include, but not be limited to, woody vegetation, spoil, lean shale, grease, lubricants, paints, flammable liquids, garbage, abandoned machinery, and lumber resultant to the mining operation.

(b) "Processing wastes" means any solid, liquid, semisolid, slurry or sludge material (excluding spent shale) produced by any physical, chemical, mechanical, or thermal process which is considered of low economic value. Such wastes shall include but not be limited to raw shale fines, scrubber sludges, tank bottoms, filter cakes, and spent catalysts.

(c) "Spent shale" means the solid waste material left after oil shale has been subjected to processing (chemical, mechanical, or thermal) to remove the oil and gas contained in the raw material.

(108) "Water table" means the upper surface of a zone of saturation, where the body of groundwater is not confined by an overlying impermeable zone.

(109) "Wetlands" are areas containing much soil moisture due to the groundwater table being at or near the earth's surface. (8 Ky.R. 87; Am. 460; eff. 3-1-82; 9 Ky.R. 941; 10 Ky.R. 280; eff. 10-5-83; TAm eff. 8-9-2007.)